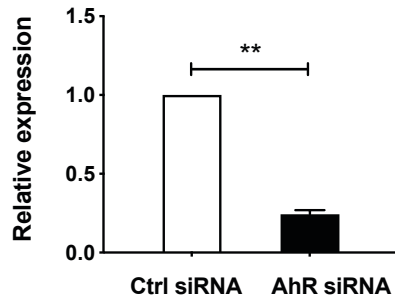
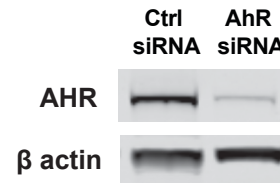


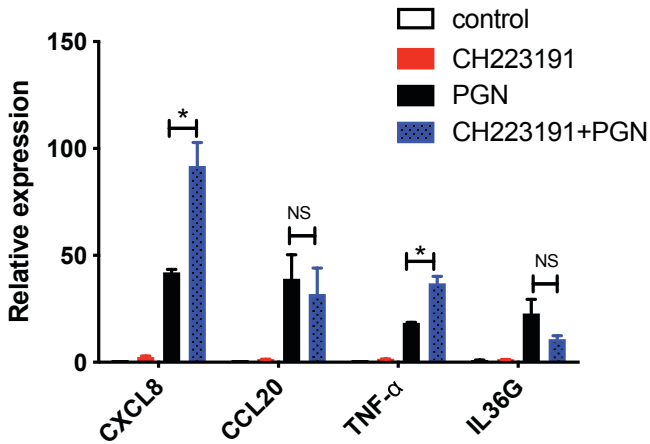
(S1a) AhR mRNA expression



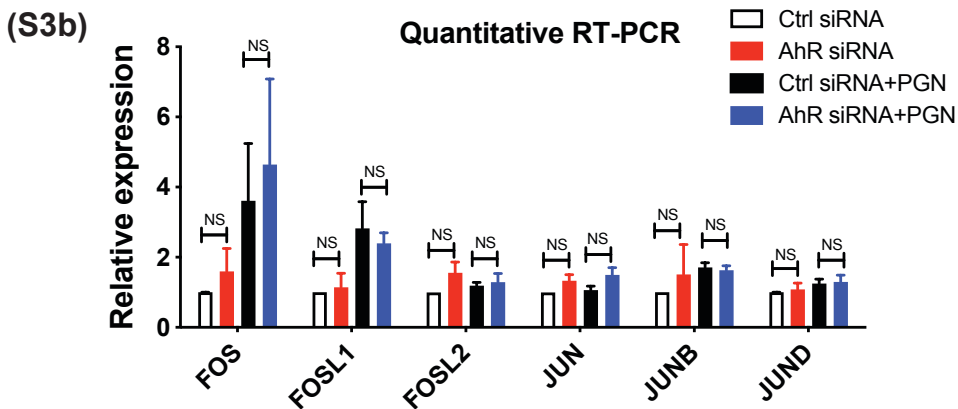
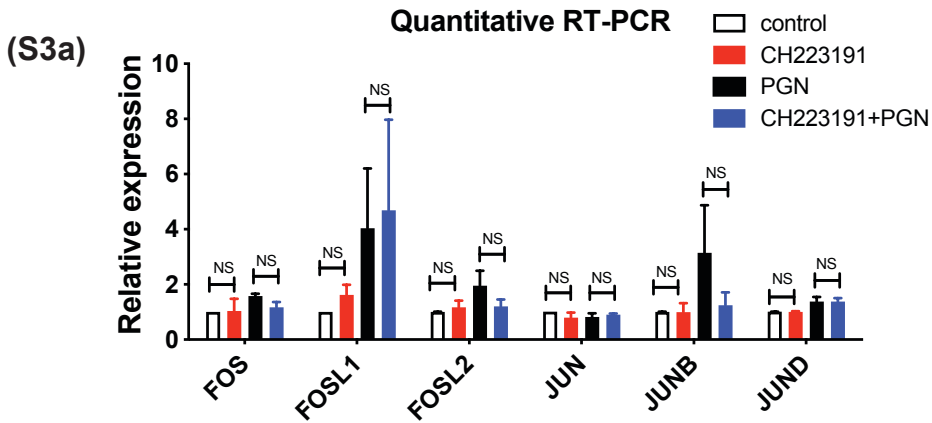
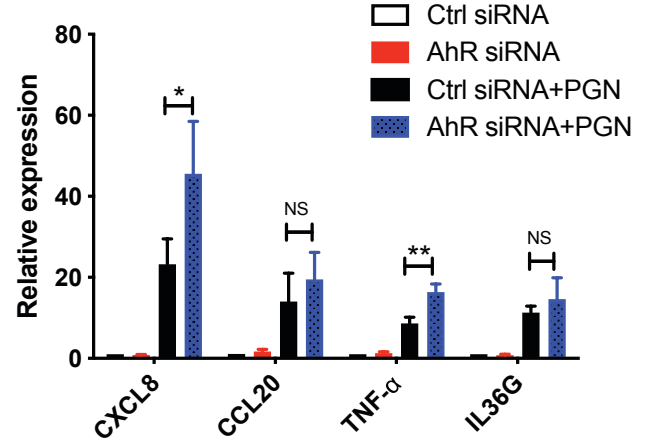
(S1b) Immunoblot



(S2a) Quantitative RT-PCR



(S2b) Quantitative RT-PCR



Supplemental Figure Legends

Supplemental Figure 1. Short interfering RNA-mediated knockdown of AhR. (A) Quantitative RT-PCR of RNA from KCs after transfection with control (ctrl) or AhR targeting (AhR) siRNAs. (B) Immunoblot of AhR following transfection of siRNAs.

Supplemental Figure 2. AhR mediates PGN-induced inflammation in human primary keratinocytes. Quantitative RT-PCR after KCs were stimulated by PGN (20 µg/ml) for 3 h. (a) Cells were pretreated with CH223191 (10 µM) or vehicle for 1 h or (b) transfected with a control siRNA or an AHR-specific siRNA. For both experiments, n=3; two-sided t-test with error bars = SEM; * $p < 0.05$, ** $p < 0.01$; ns= not significant.

Supplemental Figure 3. Effect of AhR on transcriptional expression of AP-1 family members after PGN stimulation. Quantitative RT-PCR after KCs were stimulated by PGN (20 µg/ml) for 3 h. (a) Cells were pretreated with CH223191 (10 µM) or vehicle for 1 h or (b) transfected with a control siRNA or an AHR-specific siRNA. For both experiments, n=3; two-sided t-test with error bars = SEM; ns= not significant.

Supplemental Table (following pages). Differentially expressed genes identified by RNA-sequencing of Control vs. PGN-treated keratinocytes, Control vs. AHR-knockdown keratinocytes, and Control+PGN vs. AHR-knockdown+PGN keratinocytes. Differentially expressed genes were defined as those displaying an expression difference >1.5-fold, p-value <0.05 based on two-sided t-test, and minimum threshold of 5 read counts. Expression differences are displayed as a log₂ fold change values.

Gene	Fold Change (Control + PGN vs. Control)	P-value
SLC10A2	16.15	0.040
CXCL8	13.39	0.004
NR4A3	11.97	0.001
CXCL3	11.57	0.001
PDE4B	10.89	0.018
CXCL1	10.32	0.006
TNFSF18	8.79	0.020
CSF2	8.56	0.003
NR4A2	7.68	0.000
TNF	7.50	0.011
ARHGAP20	7.30	0.025
LINC02273	7.17	0.006
NR4A1	7.16	0.001
POM121L8P	6.88	0.046
LIF	6.83	0.004
CXCL2	6.46	0.016
APOBEC3A	5.95	0.010
SPRR2F	5.79	0.025
PDGFD	5.34	0.033
SHISA2	5.23	0.015
HAS1	5.20	0.027
IL36G	5.15	0.003
SOCS3	4.84	0.001
CH25H	4.81	0.034
CCL20	4.65	0.015
PLAUR	4.56	0.022
IER3	4.50	0.000
MRPS9-AS1	4.39	0.023
EREG	4.38	0.000
TCTEX1D4	4.32	0.004
TEX14	4.31	0.034
LOC101927770	4.28	0.005
FFAR2	4.26	0.009
RPL21P44	3.92	0.031
NOP53-AS1	3.91	0.025
MAL2-AS1	3.90	0.034
FRMD8P1	3.83	0.016
LOC105371925	3.71	0.018
SPRR2E	3.56	0.008
S1PR3	3.55	0.001
IL24	3.49	0.015
SH2D4B	3.49	0.028
FAM156A	3.35	0.028
SPRR2C	3.35	0.016

FOSB	3.35	0.043
LOC101927751	3.32	0.031
GATA6	3.28	0.028
LINC02551	3.26	0.015
HSPA6	3.25	0.018
MAP3K8	3.24	0.020
TNFAIP3	3.17	0.020
SPRR2B	3.13	0.007
INHBA-AS1	3.07	0.039
ZNF56	3.03	0.029
PAPPA2	3.02	0.043
SPRR2D	2.96	0.004
SERPINA10	2.94	0.044
CYP1A1	2.90	0.040
IL13RA2	2.89	0.025
SERPINB2	2.89	0.015
C11orf96	2.83	0.038
HS3ST1	2.75	0.002
EPGN	2.67	0.006
IL1A	2.61	0.018
HECW2	2.59	0.031
FOSL1	2.53	0.002
IL1RL1	2.53	0.038
TAGLN3	2.47	0.001
PLAU	2.45	0.025
SLC7A2	2.40	0.001
LINC01599	2.39	0.038
IL1B	2.38	0.002
RCAN1	2.38	0.010
SCHIP1	2.38	0.027
TMCC3	2.34	0.041
PPP1R15A	2.28	0.029
TBX3	2.25	0.002
STX11	2.18	0.027
FAHD2CP	2.14	0.044
TRPV3	2.07	0.021
ATP6V1G2	2.06	0.041
SPRY2	2.05	0.010
C10orf55	1.99	0.008
CDC42EP2	1.97	0.009
RAB43	1.90	0.047
TIPARP	1.90	0.007
CEMIP2	1.90	0.029
GJB4	1.79	0.020
OASL	1.73	0.036

GRAMD2B	1.70	0.038
TNFAIP8	1.70	0.043
AREG	1.68	0.014
CHST2	1.67	0.032
DUSP4	1.66	0.040
F2RL1	1.64	0.044
SGMS2	1.54	0.042
HRH1	1.52	0.049
ZNF200	-1.52	0.037
FAM217B	-1.52	0.036
ZNF429	-1.54	0.043
SLC9A3	-1.56	0.032
CAMKK1	-1.58	0.043
JRK	-1.59	0.020
THEM6	-1.63	0.021
WNT3	-1.65	0.027
ZNF181	-1.68	0.034
HOXC13	-1.77	0.005
ZNF420	-1.80	0.028
ZNF253	-1.80	0.047
BCL6	-1.81	0.019
CCDC39	-1.87	0.035
HEXIM2	-1.88	0.041
P2RY1	-1.95	0.012
SEMA6C	-1.95	0.026
OTUD1	-1.97	0.021
ZNF563	-1.97	0.030
ID3	-2.02	0.004
ZFP37	-2.03	0.031
LBX2-AS1	-2.14	0.028
PPIEL	-2.14	0.015
MYLIP	-2.15	0.013
FAM85A	-2.17	0.032
S1PR5	-2.18	0.006
MAF	-2.20	0.031
TOB1-AS1	-2.20	0.018
CD101	-2.25	0.038
SARM1	-2.28	0.010
ADH7	-2.30	0.036
ALOX12	-2.30	0.035
UBE2F-SCLY	-2.32	0.014
SEPTIN7-AS1	-2.32	0.023
EIF2AK3-DT	-2.43	0.037
SCOC-AS1	-2.46	0.041
TP73	-2.56	0.028

PDZD4	-2.58	0.044
OTUD7A	-2.64	0.033
SERPINE3	-2.96	0.034
TTC3-AS1	-3.01	0.046
CD248	-3.07	0.024
LINC02158	-3.12	0.040
ZNF807P	-3.29	0.027
LOC100270746	-3.31	0.045
LSMEM1	-3.34	0.009
LOC100506258	-3.41	0.046
ROPN1L	-3.45	0.013
PLAC8L1	-3.60	0.013
SOX21	-3.70	0.036
CEP170P1	-4.03	0.014
ELOVL3	-4.10	0.044
GFAP	-4.98	0.035
LOC653653	-5.08	0.010
LOC100499489	-5.31	0.003
ABCC6P2	-5.77	0.011
LOC105377342	-5.95	0.017
FXD1	-7.48	0.009

Gene	Fold Change (AHR siRNA vs. Control siRNA)	P-value
AHR	-3.40	0.002
MYEOV	-2.52	0.050
S100A12	-2.38	0.016
GPAT3	-1.96	0.034
LINC00673	-1.87	0.041
IL1B	-1.65	0.026
TAGLN3	1.55	0.037
LOC102724488	1.57	0.045
HCP5	1.62	0.045
APCDD1	1.63	0.019
RAB15	1.64	0.031
FN1	1.64	0.029
S1PR3	1.78	0.033
FBLN2	1.78	0.037
CPAMD8	1.99	0.024
LINC00965	2.01	0.046
LINC02709	2.01	0.049
FZD8	2.03	0.036
TUBAL3	2.04	0.047
H2BC11	2.06	0.033
LTC4S	2.07	0.048
MAP2K4P1	2.16	0.035
H4C12	2.18	0.050
CCDC183-AS1	2.21	0.040
BHLHE41	2.22	0.027
CALML3	2.23	0.018
FAHD2CP	2.32	0.026
CREB3L1	2.39	0.028
ANKAR	2.46	0.019
ATP6V1G2	2.53	0.014
IGFBP5	2.72	0.047
TCTEX1D4	2.90	0.016
ITGAM	3.26	0.015
HSD17B3	3.40	0.046

Gene	Fold Change (AHRi +PGN vs CTRLi +PGN)	P-value
KRT4	-13.74	0.006
CYP1B1	-7.92	0.042
CYP1A1	-4.97	0.005
AHR	-3.70	0.002
PHOSPHO2-KLHL23	-3.39	0.045
NPIP9	-2.38	0.042
SPRR2D	-2.20	0.016
LOC101928069	-2.17	0.037
LRRC7	-2.13	0.043
ANKRD2	-2.08	0.027
DLX2	-2.00	0.044
GPAT3	-1.97	0.029
SPRR2B	-1.97	0.045
RBM26-AS1	-1.94	0.040
LINC00673	-1.90	0.041
AREG	-1.85	0.007
IL1B	-1.81	0.013
EREG	-1.73	0.039
IER3	-1.63	0.035
TIPARP	-1.61	0.026
ADGRF1	-1.61	0.013
UPP1	-1.57	0.036
C1QTNF6	-1.53	0.026
TXNRD1	-1.52	0.035
GSTM2	1.55	0.043
SYNPO	1.57	0.040
MT1X	1.57	0.010
PNRC1	1.59	0.018
FN1	1.60	0.034
C1R	1.66	0.024
PGM2L1	1.66	0.034
RAB15	1.66	0.029
H19	1.71	0.049
SERPINF2	1.75	0.037
PALMD	1.79	0.034
SERPINB4	1.81	0.020
RCAN1	1.81	0.049
S1PR3	1.84	0.025
DGUOK-AS1	1.84	0.039
APCDD1	1.87	0.008
C1S	1.88	0.032
ATP8A1	1.93	0.043
CA12	1.97	0.035
WNT3	2.03	0.006

FBLN2	2.09	0.013
HSPA1L	2.14	0.041
ESPNL	2.14	0.034
TSSK3	2.20	0.029
CHI3L2	2.21	0.037
CREB3L1	2.26	0.041
DLX4	2.29	0.024
LINC00266-1	2.30	0.031
CALML3	2.40	0.012
BHLHE41	2.49	0.016
MAF	2.50	0.018
SCOC-AS1	2.51	0.040
CD101	2.53	0.020
MCHR1	2.60	0.035
RGPD1	2.63	0.036
PIK3CD-AS2	2.68	0.048
GABRQ	2.69	0.033
WNT4	2.79	0.039
COL21A1	2.86	0.045
IGFBP5	3.14	0.019
TLCD4-RWDD3	3.18	0.008
CLDN8	3.43	0.047
SNORA73A	3.58	0.030
KIF12	3.96	0.011
CXCL14	4.28	0.024
PAPPA	4.31	0.011
CD248	4.87	0.005
SNORD3A	10.16	0.009